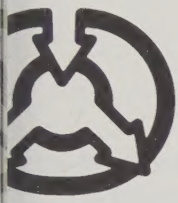

Journal of Algorithms

Editors: DONALD E. KNUTH · HERBERT S. WILF

Editorial Board

L. M. Adleman
J. Bentley
J. Edmonds
S. Even
P. Flajolet
Z. Galil
R. L. Graham
L. J. Guibas
D. S. Johnson
R. M. Karp
D. J. Kleitman
E. M. Luks
A. Nijenhuis
A. Odlyzko
M. S. Paterson
N. Pippenger
M. Rabin
R. Sedgewick
R. E. Tarjan
J. Vuillemin
S. Winograd
A. C. Yao

VOLUME 6, 1985

ACADEMIC PRESS, INC.

(Harcourt Brace Jovanovich, Publishers)

San Diego Orlando New York Austin London
Montreal Sydney Tokyo Toronto

Copyright © 1985 by Academic Press, Inc.
All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (27 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1985 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0196-6774/85 $3.00

MADE IN THE UNITED STATES OF AMERICA

CONTENTS OF VOLUME 6

NUMBER 1, MARCH 1985

LUC DEVROYE. The Expected Length of the Longest Probe Sequence for Bucket Searching When the Distribution Is Not Uniform . . . 1

Z. MILLER AND J. B. ORLIN. NP-Completeness for Minimizing Maximum Edge Length in Grid Embeddings 10

GARRET SWART. Finding the Convex Hull Facet by Facet 17

BRENDA S. BAKER. A New Proof for the First-Fit Decreasing Bin-Packing Algorithm 49

VALERY B. ALEKSEYEV. On the Complexity of Some Algorithms of Matrix Multiplication 71

N. LINIAL AND M. SAKS. Searching Ordered Structures 86

COLM Ó'DÚNLAING AND CHEE K. YAP. A "Retraction" Method for Planning the Motion of a Disc 104

R. P. ANSTEE. An Algorithmic Proof of Tutte's f-Factor Theorem . . 112

ESKO UKKONEN. Finding Approximate Patterns in Strings 132

NOTE

MARKKU TAMMINEN. Two Levels Are as Good as Any 138

DAVID S. JOHNSON. The NP-Completeness Column: An Ongoing Guide 145

PAPERS TO APPEAR IN FORTHCOMING ISSUES 160

NUMBER 2, JUNE 1985

DONALD E. KNUTH. Dynamic Huffman Coding 163

DONALD E. KNUTH. An Analysis of Optimum Caching 181

QUENTIN F. STOUT. Pyramid Computer Solutions of the Closest Pair Problem 200

H. EDELSBRUNNER. Computing the Extreme Distances between Two Convex Polygons 213

ANDRZEJ PROSKUROWSKI AND FRANK RUSKEY. Binary Tree Gray Codes 225

FANICA GAVRIL AND JOHANAN SCHÖNHEIM. Constructing Trees with Prescribed Cardinalities for the Components of Their Vertex Deleted Subgraphs 239

ANDREW C. YAO. On Optimal Arrangements of Keys with Double Hashing 253

REFAEL HASSIN AND NIMROD MEGIDDO. An Optimal Algorithm for Finding All the Jumps of a Monotone Step-Function 265

EDWARD A. BENDER AND HERBERT S. WILF. A Theoretical Analysis of Backtracking in the Graph Coloring Problem 275

PROBLEMS 283

DAVID S. JOHNSON. The NP-Completeness Column: An Ongoing Guide 291

PAPERS TO APPEAR IN FORTHCOMING ISSUES 306

NUMBER 3, SEPTEMBER 1985

MARTIN FARBER AND J. MARK KEIL. Domination in Permutation Graphs 309

THOMAS G. SZYMANSKI. Hash Table Reorganization 322

PATRICIO V. POBLETE AND J. IAN MUNRO. The Analysis of a Fringe Heuristic for Binary Search Trees 336

M. C. ER. The Complexity of the Generalised Cyclic Towers of Hanoi Problem 351

VICTOR KLEE AND MICHAEL C. LASKOWSKI. Finding the Smallest Triangles Containing a Given Convex Polygon 359

PETER B. BORWEIN. On the Complexity of Calculating Factorials . . 376

DAVID P. DOBKIN AND DAVID G. KIRKPATRICK. A Linear Algorithm for Determining the Separation of Convex Polyhedra . . . 381

HIROYUKI NAKAYAMA, TAKAO NISHIZEKI, AND NOBUJI SAITO. Lower Bounds for Combinatorial Problems on Graphs 393

KOHEI NOSHITA. A Theorem on the Expected Complexity of Dijkstra's Shortest Path Algorithm 400

ALON ITAI AND MICHAEL RODEH. Scheduling Transmissions in a Network 409

NOTE
NIMROD MEGIDDO. Partitioning with Two Lines in the Plane . . 430

DAVID S. JOHNSON. The NP-Completeness Column: An Ongoing Guide 434

PAPERS TO APPEAR IN FORTHCOMING ISSUES 452

NUMBER 4, DECEMBER 1985

DAVID P. DOBKIN AND J. IAN MUNRO. Efficient Uses of the Past . . 455

BÉLA BOLLOBÁS AND ISTVAN SIMON. Repeated Random Insertion into a Priority Queue 466

WILLIAM M. KANTOR. Polynomial-Time Algorithms for Finding Elements of Prime Order and Sylow Subgroups 478

HERBERT EDELSBRUNNER AND MARK H. OVERMARS. Batched Dynamic Solutions to Decomposable Searching Problems 515

B. DOMANSKI AND M. ANSHEL. The Complexity of Dehn's Algorithm for Word Problems in Groups 543

A. BAGCHI AND P. K. SRIMANI. Weighted Heuristic Search in Networks 550

ROBERT W. IRVING. An Efficient Algorithm for the "Stable Roommates" Problem 577

PAPERS TO APPEAR IN FORTHCOMING ISSUES 596

AUTHOR INDEX FOR VOLUME 6 597